



Deep Space Chronicle:

# Appendices

# Appendix 1

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## Abbreviations

AFBMD	Air Force Ballistic Missile Division
ARC	Ames Research Center
ASI	Italian Space Agency
AU	astronomical unit
DoD	Department of Defense
DSPSE	Deep Space Program Science Experiment
ESA	European Space Agency
ESMC	Eastern Space and Missile Center
ETR	Eastern Test Range
GSFC	Goddard Space Flight Center
GSMZ Lavochkin	Lavochkin State Union Machine Building Plant
IASTP	Inter-Agency Solar-Terrestrial Physics (Program)
ISAS	Institute of Space and Astronautical Science
JPL	Jet Propulsion Laboratory
KSC	Kennedy Space Center
LaRC	Langley Research Center
NASA	National Aeronautics and Space Administration
NEAR	Near Earth Asteroid Rendezvous
NIIP-5	Scientific-Research and Testing Range No. 5 (Baykonur)
NPO Lavochkin	Lavochkin Scientific-Production Association
OKB-1	Experimental Design Bureau No. 1

SETI	Search for Extraterrestrial Intelligence
SOHO	Solar and Heliospheric Observatory
SSI	Solid State Imaging (system)
STL	Space Technology Laboratories
STSP	Solar Terrestrial Science Programme
TETR-B	Test and Training Satellite
TsKBEM	Central Design Bureau of Experimental Machine Building (formerly OKB-1)
U.S.	United States (of America)
USAF	U.S. Air Force
USSR	Union of Soviet Socialist Republics (Soviet Union)
UT	Universal Time
WSMC	Western Space and Missile Center

## Appendix 2

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### Lunar, Planetary, and Deep Space “Firsts”

#### Overall

First lunar probe attempt:

U.S. / **Able 1** / 17 August 1958

First probe to reach escape velocity:

USSR / **Luna 1** / 2 January 1959

First probe to heliocentric orbit:

USSR / **Luna 1** / 2 January 1959

First spacecraft to impact on another celestial body (Moon):

USSR / **Luna 2** / 14 September 1959

First spacecraft to fly by the Moon:

USSR / **Luna 3** / 6 October 1959

First photographs of the far side of the Moon:

USSR / **Luna 3** / 6 October 1959

First Mars probe attempt:

USSR / [**Mars**] / 10 October 1960

First spacecraft to fly past Venus successfully:

U.S. / **Mariner 2** / 14 December 1962

First spacecraft to fly past Mars successfully:

U.S. / **Mariner 4** / 15 July 1965

First spacecraft to impact another planet (Venus):  
USSR / **Venera 3** / 1 March 1966

First spacecraft to make a survivable landing on the Moon:  
USSR / **Luna 9** / 3 February 1966

First spacecraft to orbit the Moon:  
USSR / **Luna 10** / 2 April 1966

First spacecraft to take pictures of Earth from the Moon:  
U.S. / **Lunar Orbiter 2** / 23 August 1966

First successful planetary atmospheric entry probe (Venus):  
USSR / **Venera 4** / 18 October 1967

First liftoff from the Moon:  
U.S. / **Surveyor 6** / 17 November 1967

First successful circumlunar mission:  
USSR / **Zond 5** / 14–21 September 1968

First transmission from the surface of another planet (Venus):  
USSR / **Venera 7** / 15 December 1970

First robotic spacecraft to recover and return lunar samples:  
USSR / **Luna 16** / 12–21 September 1970

First wheeled vehicle on the Moon:  
USSR / **Lunokhod 1** / 17 November 1970

First spacecraft to impact on Mars:  
USSR / **Mars 2** / 27 November 1971

First spacecraft to enter orbit around a planet (Mars):  
U.S. / **Mariner 9** / 14 November 1971

First spacecraft to fly through the asteroid belts:  
U.S. / **Pioneer 10** / out in February 1973

First spacecraft to fly past Jupiter:  
U.S. / **Pioneer 10** / 4 December 1973

First spacecraft to use gravity-assist to change its trajectory:  
U.S. / **Mariner 10** / 5 February 1974 (at Venus)

First spacecraft to fly past Mercury:  
U.S. / **Mariner 10** / 29 March 1974

First spacecraft to transmit photos from the surface of another planet (Venus):  
USSR / **Venera 9** / 22 October 1975

First spacecraft to orbit Venus:  
USSR / **Venera 9** / 22 October 1975

First spacecraft to take photos on the surface of Mars:

U.S. / **Viking 1** / 20 July 1976

First spacecraft to orbit a libration point:

U.S. / **ISEE-3** / 20 November 1978

First spacecraft to fly past Saturn:

U.S. / **Pioneer 11** / 1 September 1979

First spacecraft to leave the solar system:

U.S. / **Pioneer 10** / 13 June 1983

First spacecraft to fly past a comet (Comet Giacobini-Zinner):

U.S. / **ISEE-3** / 11 September 1985

First spacecraft to fly past Uranus:

U.S. / **Voyager 2** / 24 January 1986

First spacecraft to fly past Neptune:

U.S. / **Voyager 2** / 25 August 1989

First spacecraft to use Earth for a gravity-assist:

ESA / **Giotto** / 2 July 1990

First spacecraft to use aerobraking to reduce velocity:

Japan / **Hiten** / 19 March 1991

First spacecraft to fly past an asteroid (Gaspia):

U.S. / **Galileo** / 29 October 1991

First spacecraft to enter Jupiter's atmosphere:

U.S. / **Galileo Probe** / 7 December 1995

First spacecraft to orbit Jupiter:

U.S. / **Galileo Orbiter** / 8 December 1995

First wheeled vehicle on another planet (Mars):

U.S. / **Sojourner** / 5 July 1997

First spacecraft to orbit an asteroid (Eros):

U.S. / **NEAR** / 14 February 2000

First spacecraft to land on an asteroid (Eros):

U.S. / **NEAR Shoemaker** / 12 February 2001

## **Mercury**

First flyby:

U.S. / **Mariner 10** / 29 March 1974

## **Venus**

First probe attempt:

USSR / **Venera** / 4 February 1961

First successful flyby:

U.S. / **Mariner 2** / 14 December 1962

First impact:

USSR / **Venera 3** / 1 March 1966

First successful atmospheric entry:

USSR / **Venera 4** / 18 October 1967

First soft-landing:

USSR / **Venera 7** / 15 December 1970

First surface photos:

USSR / **Venera 9** / 22 October 1975

First orbiter:

USSR / **Venera 9** / 22 October 1975

## **Moon**

First lunar probe attempt:

U.S. / **Able 1** / 17 August 1958

First impact:

USSR / **Luna 2** / 14 September 1959

First flyby:

USSR / **Luna 3** / 6 October 1959

First photos of the far side:

USSR / **Luna 3** / 6 October 1959

First survivable landing:

USSR / **Luna 9** / 3 February 1966

First orbiter:

USSR / **Luna 10** / 2 April 1966

First liftoff from the Moon:

U.S. / **Surveyor 6** / 17 November 1967

First successful circumlunar mission:

USSR / **Zond 5** / 14–21 September 1968

First robotic soil sample:

USSR / **Luna 16** / 12–21 September 1970

First wheeled vehicle on the Moon:  
USSR / **Lunokhod 1** / 17 November 1970

## **Mars**

First probe attempt:  
USSR / [**Mars**] / 10 October 1960

First successful flyby:  
U.S. / **Mariner 4** / 15 July 1965

First spacecraft to orbit:  
U.S. / **Mariner 9** / 14 November 1971

First impact:  
USSR / **Mars 2** / 27 November 1971

First surface photos:  
U.S. / **Viking 1** / 20 July 1976

First wheeled vehicle:  
U.S. / **Sojourner** / 5 July 1997

## **Jupiter**

First flyby:  
U.S. / **Pioneer 10** / 4 December 1973

First atmospheric entry:  
U.S. / **Galileo Probe** / 7 December 1995

First orbiter:  
U.S. / **Galileo Orbiter** / 8 December 1995

## **Saturn**

First flyby:  
U.S. / **Pioneer 11** / 1 September 1979

## **Uranus**

First flyby:  
U.S. / **Voyager 2** / 24 January 1986

## **Neptune**

First flyby:  
U.S. / **Voyager 2** / 25 August 1989